

## ABSTRACT

A delay mismatched feed forward amplifier system employing a control system and method using floors and penalties is disclosed. The disclosed control system and method allows the second loop phase adjuster setting to be offset in a repeatable and controlled manner. Applying floors and penalties to offset the steady-state phase adjuster setting modifies the conventional pilot cancellation approach. In the conventional case, pilot cancellation has a distinct minimum that corresponds to the desired adjustment setting. In the disclosed approach, the measured pilot cancellation is clipped to a lower bound or floor to produce a set of equal valued minimum control results. The floor is selected to place a desired phase offset to the phase adjuster at the edge of minimum floor. To ensure that the correct phase adjuster offset is selected from the set of equal valued minimum control results, a control direction based penalty is added. By including both the floor and penalty, the phase adjuster steady state offset will be controlled to the edge of the minimum floor.